



Purchasing Receipts

PO No	Supplier	Line No	Rel No	Terms	Purchased Item	Description	For Part	Project	Equipment ID	Order Qty	Due Date	Received Quantity	Accounting Job No	Container No	Status	Receive Date	Price/Unit	Aging Days
P0039511	TWM001-VU	1	1	Net 30	M304TR0.500W.03	304 Round Tube .500				80	4/12/2018	80		S060102	Stock	4/11/2018	\$ 1.84 / pcs	0
						MATERIAL: AISI 304/316 SS SEAMLESS ROUND TUBING AS PER ASTM A213 OR ASTM SA213 OR ASTM A269 receive ft												
		2			M4130NT0.750W.049	4130 Round Tube				20		23		S060103	Stock	4/11/2018	\$ 11.48 / pcs	0
						750 X 049W : MATERIAL: AISI 4130N STEEL TUBING AS PER MIL-T-6736 OR AMS 6371/6360/6361/6362 6373/6374 receive ft												
		3			M4130NT0.750W.08	4130 Round Tube						20		S060104	Stock	4/11/2018	\$ 5.03 / pcs	0
						750 X 083W : MATERIAL: AISI 4130N STEEL TUBING AS PER MIL-T-6736 OR AMS 6371/6360/6361/6362 6373/6374 receive ft												
Total:										120		123						

PURCHASE ORDER
PO039511

Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada
Tel (613) 632-5200



Supplier:

TWM001-VU
PO Box 933014
Atlanta, GA 31193-3014 USA
Phone: 585 768 5600
Fax: 585 768 5601

Ship To:

1270 Aberdeen Street
Hawkesbury
ON
K6A 1K7 Canada
Phone: 613-632-5200

PO No:

PO039511

PO Date:

4/4/18

Due Date:

4/12/18

Purchase Order
Revision:

Revision Date:

Ship-To Contact:

Lavoie, ChantalPhone:
clavoie@dartaero.com

Via:

Ground

Pymt Terms:

Net 30

Special Comments:

E-MAILED
APR 06 2018

Line	Item	Part	Supplier	Part No	Description	Status	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (USD)	Extended Price
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1	M304TR0.500W.035	304 Round Tube .500 X .035W	: MATERIAL: AISI 304/316 SS SEAMLESS	ROUND TUBING AS PER ASTM A213 OR ASME SA213 OR ASTM A269	receive ft	Firmed	4/12/18	80 pcs	0 pcs	80 pcs	\$1.8422/pcs	\$147.38
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2	M4130NTO.750W.049	4130 Round Tube .750 X.049W	: MATERIAL: AISI 4130N	STEEL TUBING AS PER MIL-T-6736 OR AMS 6371/6360/6361/6362 6373/6374	receive ft	Firmed	4/12/18	20 pcs	0 pcs	20 pcs	\$11.4754/pcs	\$229.51
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3	M4130NTO.750W.083	4130 Round Tube .750 X.083W	: MATERIAL: AISI 4130N	STEEL TUBING AS PER MIL-T-6736 OR AMS 6371/6360/6361/6362 6373/6374	receive ft	Firmed	4/12/18	20 pcs	0 pcs	20 pcs	\$5.03/pcs	\$100.60
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4	M6061T6TO.750W.125	6061-T6 Round Tube .750 X .125W	: MATERIAL: 6061-T6/T62/T6510/T6511	SEAMLESS TUBING AS PER WW-T-700/8 OR QQ-A-200/8 OR QQ-A-225/8 OR AMS 4080 OR AMS 4082 OR ASTM B210 OR ASTM B241	receive ft	Firmed	4/12/18	12 pcs	0 pcs	12 pcs	\$9.20/pcs	\$110.40
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Grand Total: \$587.88

Plex 4/4/18 3:15 PM dart.lavoie.chantal

Order Notes

Procurement Quality Clauses

A005 right of entry

A012 chemical and physical test report

A016 personnel qualification

A017 raw material identification (as applicable)

A026 certification of material conformance

A041 quality management system

A042 dart notification by supplier

A043 retention of quality documents

A048 counterfeit parts avoidance, detection, mitigation and disposition program

A049 supplier awareness

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit

www.dartlaerospace.com for further explanation.

Plex 4/4/18 3:15 PM dart.lavoie.chantal

CF

METALS



Packing Slip

ORDER NO.: 60654053 FROM: CRAN PAGE 1

CUST NUMBER: 1203820 NET WGT: 34.541 REQ. DATE: 04/12/18 CONFIRMED

SOLD TO: DART AEROSPACE LTD
1270 ABERDEEN ST
HAWKESBURY ON
CANADA
CN K6A 1K7

SALES PERSON: DONNA SMALLEY
SHIP BY: 04/09/18
COMMON CARRIER
PREPAID
VIA: FREIGHT: RELEASE NO.: RECEIVING PHONE: WIDTH

LINE ITEM DESCRIPTION 0001 36449 SMLS CD 304/L A269 1/2 OD X .035 WA
INVOICE QTY 80.000 FT
SHIPPED QTY 80.000 FT
WT 13.901
PCS

** 1 TEST REPORTS REQUIRED **

ECCN: 2B999.g
PO: 49366890 HT: YX1608590
Export License: NLR
PC: 4
MFG: CHINA
SLB/CL: 7-45
CUSTOMER QTY: 0/00/00
Expiration Date: 0/00/00
UOM

0002 33047 CDS 4130 6736 3/4 X .049

CLN# ORD QTY INVOICE QTY SHIPPED QTY
20.000 FT 23.500 FT 23.500 FT
WT 8.618
PCS

** 1 TEST REPORTS REQUIRED **

ECCN: 9A991.d
PO: 49380066 HT: 606101
Export License: NLR
PC: 1
MFG: UNITED STATES
SLB/CL: 158452
CUSTOMER QTY: 0/00/00
Expiration Date: 0/00/00
UOM

0003 33096 SMLS CD 4130 6736 3/4 OD X .083 WA

CLN# ORD QTY INVOICE QTY SHIPPED QTY
20.000 FT 20.333 FT 20.333 FT
WT 12.022
PCS

** 1 TEST REPORTS REQUIRED **

ECCN: 9A991.d
PO: 49365379 HT: 603114
Export License: NLR
PC: 1
MFG: GERMANY
SLB/CL: 1634564
CUSTOMER QTY: 0/00/00
Expiration Date: 0/00/00
UOM

THANK YOU FOR THIS ORDER

TERMS AND CONDITIONS APPLICABLE TO THE SALE OF THESE
PRODUCTS ARE SET FORTH ON OUR WEBSITE FOR YOUR CAREFUL
REVIEW.
<http://www.twmetals.com/invoice-terms.html>



O'Neal High-Performance Metals Group



Packing Slip

ORDER NO.: 60654053 FROM: CRAN PAGE 2

CUST NUMBER: 1203820 NET WGT:

34.541 REQ. DATE: 04/12/18 CONFIRMED

SOLD TO:

SHIP TO:

DART AEROSPACE LTD

DART AEROSPACE LTD

1270 ABERDEEN ST

1270 ABERDEEN ST

HAWKESBURY ON

HAWKESBURY ON

CN K6A 1K7

CN K6A 1K7

SALESPERSON: DONNA SMALLEY

SHIP BY:

04/09/18

NET 30 DAYS

VIA:

COMMON CARRIER

SHIPPING POINT

FREIGHT:

PREPAID

CUST ORD NO.:

P0039511

RELEASE NO.:

RECEIVING PHONE:

LINE ITEM DESCRIPTION

BROKERS KUEHNE AND NAGEL LTD

AREA TYPE OF PKG

PKGS GRS WEIGHT

WIDTH

LENGTH

NEW PEN REDDICRATE 1.000 104.540 3.0000 282.0000 3

Orders In Package - 1

Box No - TWPK18009386

BY: Thomas Burgess

RT 000-

UNLOAD TYPE: NONE SPECIFIED

DATE SHIPPED

DATE FILLED

THANK YOU FOR THIS ORDER

TERMS AND CONDITIONS APPLICABLE TO THE SALE OF THESE
PRODUCTS ARE SET FORTH ON OUR WEBSITE FOR YOUR CAREFUL
REVIEW.
<http://www.twmetals.com/invoice-terms.html>



O'Neal High-Performance Metals Group



Packing Slip

ORDER NO.: 60654053 FROM: CRAN PAGE 3

CUST NUMBER: 1203820 NET WGT: 34.541 REQ. DATE: 04/12/18 CONFIRMED
SOLD TO: DART AEROSPACE LTD
1270 ABERDEEN ST
HAWKESBURY ON CANADA
SALESPERSON: DONNA SMALLEY
NET 30 DAYS
F.O.B.: SHIPPING POINT
CUST ORD NO.: P0039511
VIA: COMMON CARRIER
FREIGHT: PREPAID
RELEASE NO.:
RECEIVING PHONE:

SHIP TO: DART AEROSPACE LTD
1270 ABERDEEN ST
HAWKESBURY ON CANADA
SHIP BY: 04/09/18
27 ENGLEHARD DRIVE
MONROE TWP NJ 08831

"TW Metals MSDS data is available on our web site at www.twmetals.com. MSDS data can be found under the Technical Resources Tab, Product Statistics & Data and the TW Metals MSDS's heading. If you do not have web site access you may telephone 610-458-1300 and we will mail or fax a copy of our current MSDS data to your location."

"CERTIFICATE OF CONFORMANCE"

"TW Metals certifies that the material supplied on this purchase order and contained in the heat/lot number referenced above has been manufactured, inspected, and tested in accordance with the material specification. These records are on file at TW Metals. Packaging material for shipments to Europe and China consists of manufactured wood products and complies with the European emergency measures for confiterous non-manufactured wood packing material"

Electronically Generated Certificate-Valid without signature Date: 4/06/18

These commodities have been exported from the United States in accordance with the U.S. export control laws, export administrations regulations. Diversion contrary to U.S. law prohibited.

THANK YOU FOR THIS ORDER

TERMS AND CONDITIONS APPLICABLE TO THE SALE OF THESE PRODUCTS ARE SET FORTH ON OUR WEBSITE FOR YOUR CAREFUL REVIEW.
<http://www.twmetals.com/invoice-terms.html>

Benteler Steel/Tube GmbH
Postfach 13 40
33043 Paderborn
Deutschland
Tel.: +49.5254.81-0 Fax: +49.5254.13866

BENTELER
Steel/Tube

ABNAHMEPRÜFZEUGNIS EN 10204-3.1
INSPECTION CERTIFICATE EN 10204-3.1
CERTIFICAT DE RECEPTION EN 10204-3.1
EN 10204-2005-01

Benteler Steel/Tube GmbH - Postfach 1340 - 33043 Paderborn - Deutschland

TW Metals
The Aboretum, Suite 204
760 Constitution Drive
EXTON PA 19341
USA

Dokument-Nr.: 41-1005860/001/Z

Document No.:
No. du document:

Purchaser Order No.:
No. de commande du client:

Benteler Auftrags-Nr.:
Benteler Order No.:

No. de commande Benteler:

Verbandsanzeigen-Nr.:
Dispatch Note No.:

No. d'avis d'expédition:

Prüf-Nr.:
Inspection No.:

No. du certificat:

Hersteller:
Manufacturer:

Produkteur:
Manufacturer's brand:

Marque du producteur:

Stempel des Abnahmebeauftragten:
Stamp of the inspection representative:

Poligon du contrôleur:

Produkt: NAHTLOSE STAHLROHRE
Product: SEAMLESS STEEL TUBES
Produit: TUBES D'ACIER SANS Soudure

Stahlerzeugungsverfahren: ELEKTROSTAHL
Steelmaking process: ELECTRIC FURNACE
Procédé d'élaboration de l'acier: FOUR ELECTRIQUE

AMS-T-6736B-08 Type 1, ASTM-A 519-2006, MIL-T-6736B Type 1, AMS6360 Rev. M, AMS 2301K

Lieferbedingungen:
Terms of delivery:
Conditions de livraison:

AMS 2253E-83, Aircraft Type, Seamless, Cold Finished

Maße - Toleranzen:
Dimensions-tolérances:

Stahlsorte:
Steel grade:
Nuance d'acier:

Lieferzustand:
Delivery condition:
État de livraison:

Produktkennzeichnung:
Product marking:
Marquage du produit:

FSD: BENTELER AMS6360M-AMS-T-6736 B-1-MIL-T-6736 B-1-AMS 2301K 4130 Condition N HEAT-NO.
CD AQS DIMENSIONS WA GERMANY

CD AQS DIMENSIONS WA GERMANY

AZ = Austenitische Ritzung, Etching in marking, Gravure à l'acide - FK = Farbmarkierung, color marking, marquage par couleur - FS = Fechtmarkierung, palm stamping, marquage pat palmure - FSD = Farbstrahlprüfverfahren, Color jet printer, Impression à jet d'encre de couleur - UK = Lasermarkierung, Laser marking, Marquage laser - PK = Elektromarkierung, log marking, marquage sur fréquence - PS = Prägestempel, die stamp, moutage par poinçonnage - TS = Trennstrahlprüfverfahren, ink jet spray marking, Impression à jet d'encre

TW METALS
E JUN 13 2017
ACCEPTED BY

Benteler Steel/Tube GmbH
Postfach 13 40
33043 Paderborn
Deutschland
Tel.: +49-5254-81-0 Fax: +49-5254-13666

BENTELER
Steel/Tube

ABNAHMEPRÜFZEUGNIS EN 10204-3.1
INSPECTION CERTIFICATE EN 10204-3.1
CERTIFICAT DE RECEPTION EN 10204-3.1

Dokument-Nr.:
Document No.:
No. du document:

41-1005860/001/Z

Prüf-Nr.:
Inspection No.:
No. du certificat:

Blatt: 2 / 3
Page:
Page:

Pos.	Stück	Maße	Dimensions	Gesamtlänge	Gewicht	Schmelzen-Nr.	Prüfdruck	Rohr-Nr.-Gruppe	Vielfachlängen
Item	Number	Dimensions		Length total	Weight	Heat No.	Test pressure	Tube number group	Multiple lengths
Poste	Nombre	Dimensions		Longueur totale	Poids	N° de coulée	Pression d'épreuve	Série de no. des tubes	Longueurs multiples
0009	90	0.750" O.D. * 0.083" WT	feet	1830.71	106.7	603114			
		20 FT - 24 ET							

Schmelzenanalyse [%] / Heat analysis [%] / Analyse sur coulée [%]

Pos.	Schmelzen-Nr.	C	SI	MIN	P	S	CR	MO	NI	CU
Item	Heat No.									
Poste	No. de coulée									
0009	603114	0,310	0,240	0,56	0,005	0,001	0,87	0,17	0,08	0,11

Produktanalyse [%] / Product analysis [%] / Analyse sur produit [%]

Pos.	Schmelzen-Nr.	C	SI	MIN	P	S	CR	MO	NI	CU
Item	Heat No.									
Poste	No. de coulée									
0009	603114	0,300	0,230	0,53	0,006	0,001	0,87	0,17	0,08	0,11

Prüfergebnisse / Test results / Résultats des essais

Die Rohre wurden zerstörungsfrei geprüft:

The tubes are non destructive tested:

Les tubes ont passé un essai non destructif:

ET-test: acc. to ASTM-A 450; ET - Test method: acc. to ASTM-E 309; for imperfections;
ET-test: ET with rotating pancake coils; according to EN 10246-3; imperfections;
Notch depth: 0,30 mm; notch width < = notch depth; notch length min. 2 x transducer width (max. 50 mm)

Augensichtkontrolle:

PASSED

Materialverwechslungsprüfung:

PASSED

Maßkontrolle:

PASSED

Visual inspection:

Material conformity test:

Dimensions examination:

Examen visuel:

Vérification de la nuance:

Vérification des dimensions:

Ergebnisse der mechanischen Prüfung / Results of mechanical testing / Résultats des essais mécaniques

Die Probenahme erfolgte an Vielfachlängen.

The sampling was carried out on multiple lengths.

L'échantillonnage était réalisé aux longueurs multiples.

Benteler Steel/Tube GmbH
Postfach 13 40
33043 Paderborn
Deutschland
Tel.: +49.5254.81-0 Fax: +49.5254.13666

BENTELER
Steel/Tube

ABNAHMEPRÜFZEUGNIS EN 10204-3.1
INSPECTION CERTIFICATE EN 10204-3.1
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Dokument-Nr.: 41-1005860/001/Z
Document No.:
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Prüf-Nr.:
Inspection No.:
No. du certificat:

Blatt: 3 / 3
Pages:
Page:

Zugversuch längs bei RT, Vollprobe / Tensile test longitudinal et RT, Full section test specimen / Essai de traction longitudinale à TA, Eprouvette à section complète

Pos.	Proben-Nr. Specimen No.	Schmelzen-Nr. Heat No.	Probenabmessung Specimen dimensions	Streckgrenze Yield strength	Zugfestigkeit Tensile strength	Dehnung Elongation
Poste	No. de l'éprouv.	No. de coulée	Dimensions de l'éprouv.	Limite élastique	Résistance à la traction	Allongement
Anforderungen	mm					
Requisitments	mm					
Exigences	MIN 75					
0009	000001	603114	19,04 X 2,12	102	123	18,00
0009	000002	603114	19,04 X 2,12	103	123	19,00
					MIN 95	MIN 12,00
					KSI	%
					1. Formel	1. Formel
					1. Formule	1. Formule

Randentkohlung / Surface decarburization / Décarburation superficielle

Pos. / Item / Poste: 0009
acc. to AMS-6360, partial decarburization outside max. 0.014 in, partial decarburization inside max. 0.014 in, partial decarburization outside and inside max. 0.018 in, partial decarburization outside and inside max. 0.457 mm, without total decarburization, partial decarb. out. max.: 0,356 mm; partial decarb. ins. max.: 0,356 mm

Vermerk / Remark / Remarque

Pos. / Item / Poste: 0009
Certificate remarks: The steel grade corresponds to MILL-T-6736B, AMS 6360M, material free from mercury contamination, FAR BAA: 52.225-1 CANNOT COMPLY, DFARS BAA: 252.225-7001 CAN COMPLY, FAR TAA: 52.225-5 CAN COMPLY, No weld repair has been carried out, Country of origin of the material and heat: Germany, Aircraft quality steel acc. to AMS 2301K; see appendix page 1 of 1

Pos. / Item / Poste: 0009
Macroscopic examination: acc. to ASTM-E 381

Pos. / Item / Poste: 0009
Magnetic particle inspec.: acc. to AMS 2301K/ASTM-E 1444, on prematerial.

Pos. / Item / Poste: 0009
Grain size: acc. to ASTM-E 112; Grain size and finer: 5; Grain size: Longitudinal structure micrography, on prematerial

Verkäufer(in) / Sales Personnel / Personne chargée.: Mr. Schwarz, Tel.: 05254 81-204311, Fax: 204391
Paderborn Schloß Neuhaus, 19.05.2017, TEL.: 05254.81-201767 FAX: 05254.81-201752

Abnahmebeauftragter
Inspection representative
Contrôleur

I. A. THOMAS GOLLAN / TEM

Es wird bestätigt, daß die gelieferten Erzeugnisse den techn. Lieferbedingungen des Auftrages entsprechen. Dieses Dokument wurde mittels EDV erstellt und ist ohne Unterschrift rechtsgeültig.
We certify that the supplied products comply with the order specification. This document was prepared by means of electronic data processing and is valid without signature.
Nous attestons que les produits livrés sont conformes aux stipulations de la commande. Ce document a été établi par traitement électronique de l'information et est valide sans signature.

Benteler Steel/Tube GmbH
Residenzstraße 1
33104 Paderborn
Germany
Tel.: 49 5254 81-0 Fax: 49 5254 13666

BENTELER
Steel/Tube

Abnahmeprüfzeugnis EN 10204-3.1 / Anhang
Inspection Certificate EN 10204.3.1 / appendix
Certificat de réception EN 10204-3.1 / appendice

Dokument-Nr.
Document No.:
No. de document:

41-1005860/001/Z

Blatt: von
Page: 1 of 1
Page: de

Halbzeuguntersuchung: Stahlsorte 4130 / Semi finished product examination: grade 4130 / Produit semi-fini: nuance 4130

Schmelzen-Nr. Heat No. Coulée No.	Position Item Poste	Korngröße Grain size Grossueur de grain (ASTM-E 112)	Härtebarkeit (min. Anforderungen) Trempeabilité (exigence min.) (ASTM-A 255)		Magnetpulverprüfung Magnétique particule inspection Essai à la poudre magnétique (AMS 2301 K/ASTM-1444)		Makroätzung Macrostructure test Essai de macrostructure (ASTM-E 381)		
		min. 5	J(5/16") min. 35 HRC	J(8/16") min. 28 HRC	F max. 0,34	S max. 0,25	max. S 2	max. R 1	max. C 2
603114	009	9	40	32	0,020	0,015	S 2	R 1	C 2
Decarburization Depth		Outside 0,000 mm Inside 0,000 mm							

Der Stahl ist frei von Quecksilberverunreinigungen. / The steel is free of mercury contamination. / L'acier est libre des contaminations de mercure.

Paderborn Schloß Neuhaus, 19.05.2017
Tel.: (0)5254 81-201760 Fax: (0)5254 81-201752

Abnahmebeauftragter
Inspection representative
Contrôleur

Thomas Gollan



PRODUCT CERTIFICATION
 SALES ORDER - LINE / RLS
 158452 - 1 / 1

SHIP TO
 TW Metals
 27 Englehard Drive
 Monroe Township, NJ 08831
 USA

CUSTOMER P.O.	M 49380066	CUSTOMER PART	33047	QUANTITY	3,078.5	LADING NO	# 00098303	CERT ID / REV	01	CERT DATE	01/25/2018																														
PART DESCRIPTION H07500490J0002 OD: 0.7500" Max: 0.7550" Min: 0.7450" Wall: 0.0490" Max: 0.0540" Min: 0.0440" Length: 17'-00"/24'-00" Spec: MIL T 6736B Seamless Aircraft Grade: 4130 Finish: Cond N																																									
CERTIFICATION REQUIREMENTS FAR BAA (FAR 52.225-1 Buy America Act Supplies), DFARS 252.225-7001 By America Act & Bal. of Payments Program FAR TAA (FAR 52.225-5 Trade Agreements)(Paragraph 1.3.4.5) This material was Eddy Current tested and conforms to the requirements of ASTM A-450. The Grain size is determined and reported by the raw material supplier in accordance to ASTM E-112. This raw material was magnetic particle inspected by the raw material supplier in accordance to AMS 2640J and/or ASTM E-1444, and rated as Frequency, and Severity to AMS 2301, latest revision. Yield is determined by using the 0.2% offset method. This material meets Plymouth Promolloy specifications																																									
Chemical Analysis <table border="1"> <tr> <td>C</td> <td>.32</td> <td>Mn</td> <td>.53</td> <td>P</td> <td>.008</td> <td>S</td> <td>.002</td> <td>Si</td> <td>.220</td> <td>Al</td> <td>.036</td> <td>Cr</td> <td>.91</td> <td>Mo</td> <td>.18</td> <td>Ni</td> <td>.10</td> <td>Pb</td> <td>.001</td> <td>Cu</td> <td>.12</td> <td>V</td> <td>.002</td> <td>Ti</td> <td>.002</td> <td>Sn</td> <td>.010</td> </tr> </table>												C	.32	Mn	.53	P	.008	S	.002	Si	.220	Al	.036	Cr	.91	Mo	.18	Ni	.10	Pb	.001	Cu	.12	V	.002	Ti	.002	Sn	.010		
C	.32	Mn	.53	P	.008	S	.002	Si	.220	Al	.036	Cr	.91	Mo	.18	Ni	.10	Pb	.001	Cu	.12	V	.002	Ti	.002	Sn	.010														
Physical Properties <table border="1"> <tr> <td>Freq.</td> <td>.020</td> <td>Severity</td> <td>.010</td> <td>Grain Size</td> <td>5</td> </tr> </table>												Freq.	.020	Severity	.010	Grain Size	5																								
Freq.	.020	Severity	.010	Grain Size	5																																				
Mechanical Properties <table border="1"> <tr> <th>TEST</th> <th>UNITS</th> <th>#TESTS</th> <th>LOW</th> <th>AVERAGE</th> <th>STD-DEV</th> </tr> <tr> <td>Tensile</td> <td>Psi</td> <td>8</td> <td>120490</td> <td>119173</td> <td>988</td> </tr> <tr> <td>Yield</td> <td>Psi</td> <td>8</td> <td>113030</td> <td>110540</td> <td>1066</td> </tr> <tr> <td>Elongation</td> <td>%</td> <td>8</td> <td>22</td> <td>21</td> <td>1</td> </tr> <tr> <td>Rockwell C</td> <td>Rc</td> <td>8</td> <td>22</td> <td>22</td> <td>0</td> </tr> </table>												TEST	UNITS	#TESTS	LOW	AVERAGE	STD-DEV	Tensile	Psi	8	120490	119173	988	Yield	Psi	8	113030	110540	1066	Elongation	%	8	22	21	1	Rockwell C	Rc	8	22	22	0
TEST	UNITS	#TESTS	LOW	AVERAGE	STD-DEV																																				
Tensile	Psi	8	120490	119173	988																																				
Yield	Psi	8	113030	110540	1066																																				
Elongation	%	8	22	21	1																																				
Rockwell C	Rc	8	22	22	0																																				
TEST RESULT Decarb/OD Pass Total ID/OD decarb Pass																																									
Additional Specification(s) AMS-T6736 B, AMS 6360M																																									
ACCEPTED BY <i>New Normal</i> JAN 8 X 2018 TW METALS R S T R O O P O S T R U C T U R E																																									

I certify that the results are a true and correct copy of the records prepared and maintained by Plymouth Tube Company, Streator in compliance with the requirements of the cited specification. Chemistry is as reported by the Steel supplier. This test report cannot be reproduced or distributed except in full without the written permission of Plymouth Tube.

Janis Buresch
 Quality Assurance

PRODUCT CERTIFICATION

SALES ORDER - LINE / RLS

158452 - 1 / 1



PLYMOUTH TUBE CO.
1209 East 12th Street, Streator, Illinois 61364
Phone: (815) 673-1515 Fax: (815) 672-7343



SHIP TO

WORK ORDER 022738
HEAT NUMBER 606101
MELT SOURCE Benteler Steel & Tube-Germany

TW Metals
27 Englehard Drive
Monroe Township, NJ 08831
USA

CUSTOMER P.O.	CUSTOMER PART	QUANTITY	LADING NO	CERT ID / REV	CERT DATE
M 49380066	33047	3,078.5 ft	00098303	01	01/25/2018
PART DESCRIPTION					
H07500490J000Z					

This test report data is for the heat Chemistry Stated above.

The material in this test report is:

- 1) Drawn in the USA
- 2) Free from Polychlorinated Biphenyls (PCB), Polychlorinated Diphenyl Ethers (PCDE), and Mercury contamination.
- 3) NAFTA compliant.

End of Certification

I certify that the results are a true and correct copy of the records prepared and maintained by Plymouth Tube Company, Streator in compliance with the requirements of the cited specification. Chemistry is as reported by the Steel supplier. This test report cannot be reproduced or distributed except in full without the written permission of Plymouth Tube.

Janis Buresch
Quality Assurance

MILL TEST REPORT

Purchaser: TW METALS-Cranbury		Contract No.: TWMP.O.No.: M49366890		Date of Issue: 2017.8.26	
Certificate No.: 2017-8-81		Specifications: ASTM A213/17/ASME SA213-15/ASTM A269-15a EAW			
Process: Cold Drawn					
Delivery Condition: OD Polished to 240 Grit		Quantity			
Steel Grade	Heat Number	Lot Number	Dimensions	Pieces	Feet
				2500	50,000
TP304/TP304L	YX1608-590	7-45	1/2"x0.035"x20'		

Chemical Composition by Weight (%)									
Element	C	Mn	P	S	Si	Cr	Ni	Mo	Co
Requirements	≤0.035	≤2.00	≤0.045	≤0.030	≤1.00	18.00-20.00	8.00-12.00	-	-
Ladle Analysis	0.017	1.28	0.033	0.002	0.35	18.22	8.06	-	-
Product Analysis	0.022	1.27	0.035	0.004	0.38	18.36	8.09	-	-

Mechanical Properties									
Test Item	Elongation (% in 2")		Tensile Strength (PSI)		Yield Strength (PSI)		Reduction of Area Z (%)		
	Requirements	≥35	≥75,000	99,000/100,000	44,000/45,000	≥30,000	Hardness	Cold Bend	Flaring
Test Results	-	61/62	-	99,000/100,000	44,000/45,000	≥30,000	HRB≤80	Test	Test
Test Item	Requirements	-	-	-	-	-	Flaring	Flattening	Flange
Test Results	-	-	-	-	-	-	22%	e=0.09	Test
Test Item	Requirements	-	-	-	-	-	Intergranular Corrosion Test	Macroscopic Inspection	Appearance
Test Results	-	-	-	-	-	-	Passed	Passed	OK
Test Item	Requirements	-	-	-	-	-	Air Underwater Pressure Test	Ultrasonic Test	End Cut
Test Results	-	-	-	-	-	-	77/79	Test	OK
Test Results	-	-	-	-	-	-	ASTM E 426	ASTM A262 E	OK
Test Results	-	-	-	-	-	-	Passed	Passed	OK

ISO 9001:2008 Certified by CAS 117 16 QU 0053-06 ROS

PED Certified by SZUTEST 2195-PED-1526002

Additional Remarks:

(1) All tubes annealed to above 1900 Deg F and water quenched below 800 Deg F in 3 minutes

(2) All tubes tested per ASTM A1016-17

(3) Materials is NACE MR0103-2007 compliant (per Section 2.5)

(4) Materials is NACE MR0175/ISO 15156-2003 compliant (per Section 4.2.1)

CANNOT CERTIFY COMPLIANCE
FAR BAA / DFARS BAA / FAR TAA

(5) In Compliance with EN 10204-3.1

(6) In Compliance with RoHS Stipulation

(7) No weld repair performed

(8) Free from mercury contamination

(9) Free from radioactive contamination

(10) Billets melt and pipes/tubes manufactured in China

(11) All tubes 100% PMI tested

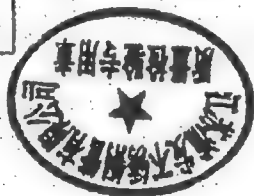
(12) All tubes 100% Eddy Current tested

We hereby certify that this report is true and correct.

Quality Control Department

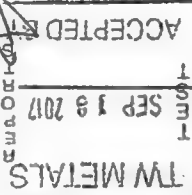
James Shi / Manager

By:



Jiangsu Pufa Stainless Steel Tube Co., Ltd.

No. 99, Xuean Middle Road, Dongchen Town, Rugao City, Jiangsu Province, P.R.China



MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M4130A1A.750W.083 PO / BATCH NO.: 033511/5060104 DATE: APR 11 2018

MATERIAL CERT REC'D: Yes QUANTITY RECEIVED: 201 QUANTITY INSPECTED: 201 QUANTITY REJECTED: 0

THICKNESS ORDERED: W.083 THICKNESS RECEIVED: W.083 SHEET SIZE ORDERED: N/A SHEET SIZE RECEIVED: N/A

DESCRIPTION	NCR (Check Y/N)	COMMENTS
SURFACE DAMAGE	<input checked="" type="radio"/> Y	
CORRECT FINISH	<input checked="" type="radio"/> Y	
CORROSION	<input checked="" type="radio"/> Y	
CORRECT GRAIN DIRECTION	<input checked="" type="radio"/> Y	
CORRECT MATERIAL PER M-DRAWING	<input checked="" type="radio"/> Y	
CORRECT THICKNESS	<input checked="" type="radio"/> Y	
PHOTO REQUIRED	<input checked="" type="radio"/> Y	
CORRECT REF # TO LINK CERT	<input checked="" type="radio"/> Y	
CORRECT MATERIAL IDENTIFICATION	<input checked="" type="radio"/> Y	
CORRECT M# ON THE MATERIAL	<input checked="" type="radio"/> Y	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	<input checked="" type="radio"/> Y	
DOES THIS REQUIRE AN EXTRUSION REPORT	<input checked="" type="radio"/> Y	

CUT SAMPLE PIECE OF MATERIAL AND PERFORM A HARDNESS CHECK. RECORD RESULTS BELOW				
HRC	HRB	DUR A	DUR D	WEBSTER

Testers located in the Quality Office

QC 18 INSPECTION

ENGINEERING SIGNOFF (if required)

INSPECTED BY: DAS SIGNED OFF BY: _____ DATE: 9-89 APR 11 2018

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

SPECIFICATION CONTROL DRAWING

PURCHASE MATERIAL: AISI 4130N SEAMLESS STEEL TUBING
 SPECIFICATION: MIL-T-6736 OF AMS 6371, 6380, 6381, 6382, 6373, 6374
 PART NUMBER: M4130N T.D.D.D. W. T.T.T.
 WHERE: "D.D.D.D." = OUTER DIAMETER (IN INCHES)
 AND "T.T.T." = WALL THICKNESS (IN INCHES)

EG. 3/4" TUBING WITH .035" WALL = M4130N10.750W.035

B	REFORMAT DING TO ACCOMMODATE ADDITIONAL TUBE	RP	17 04 02
A	NEW ISSUE	JB	01 05 16
REV	DESCRIPTION	BY	DATE
DESIGN	JB		
DRAWN	RP		
CHECKED	AP		
MFG. APPR.			
APPROVED			
DATE	12.04.02		
DRAWING NO. M4130N-T		REV. B	
TITLE STEEL TUBING		SHEET 1 OF 1	
SCALE		YTS	

RELEASE
 2012-04-16

MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M430N70.250W.049 DATE: APR 11 2018

THICKNESS ORDERED: 4.049 THICKNESS RECEIVED: W.049

SHEET SIZE ORDERED: W/A SHEET SIZE RECEIVED: W/A

MATERIAL CERT REC'D: Yes QUANTITY RECEIVED: 23'

QUANTITY INSPECTED: 23' QUANTITY REJECTED: 0

PO / BATCH NO.: 039711/5060103

DESCRIPTION	NCR (Check Y/N)	COMMENTS
SURFACE DAMAGE	<input checked="" type="radio"/> Y	
CORRECT FINISH	<input checked="" type="radio"/> Y	
CORROSION	<input checked="" type="radio"/> Y	
CORRECT GRAIN DIRECTION	<input checked="" type="radio"/> Y	
CORRECT MATERIAL PER M-DRAWING	<input checked="" type="radio"/> Y	
CORRECT THICKNESS	<input checked="" type="radio"/> Y	
PHOTO REQUIRED	<input checked="" type="radio"/> Y	
CORRECT REF # TO LINK CERT	<input checked="" type="radio"/> Y	
CORRECT MATERIAL IDENTIFICATION	<input checked="" type="radio"/> Y	
CORRECT M# ON THE MATERIAL	<input checked="" type="radio"/> Y	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	<input checked="" type="radio"/> Y	
DOES THIS REQUIRE AN EXTRUSION REPORT	<input checked="" type="radio"/> Y	

CUT SAMPLE PIECE OF MATERIAL AND PERFORM A HARDNESS CHECK.				
RECORD RESULTS BELOW				
HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL				
SIZE OF TEST SAMPLE				
HARDNESS / DUROMETER READING				

Testers located in the Quality Office

QC 18 INSPECTION

ENGINEERING SIGNOFF (if required)

SIGNED OFF BY: _____

DATE: APR 11 2018

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

SPECIFICATION CONTROL DRAWING

PURCHASE MATERIAL: MIL-T-6736 OR AMS 6371, 6360, 6361, 6362, 6373, 6374

SPECIFICATION:

PART NUMBER:

M4130N DIA. WALL

WHERE: "D.DDD" = OUTER DIAMETER (IN INCHES)
AND "TTT" = WALL THICKNESS (IN INCHES)

EG. 3/4" TUBING WITH .035" WALL = M4130NT0.750W.035

B	REFORMAT DWG TO ACCOMMODATE ADDITIONAL TUBE	RP	12.04.02
A	NEW ISSUE	JB	01.05.16
REV	DESCRIPTION	BY	DATE
DESIGN	JB		
DRAWN	RP		
CHECKED	AP		
MFG. APPR.			
APPROVED			
DE APPR.			
DATE	12.04.02		
DRAWING NO. M4130N-T		REV. B	
TITLE STEEL TUBING		SHEET 1 OF 1	
SCALE		NTS	

RELEASE
2012-04-16

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MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M304T8030W.035 DATE: APR 11 2018
 PO / BATCH NO.: 039511/5060102

MATERIAL CERT REC'D: Yes QUANTITY INSPECTED: 80' QUANTITY RECEIVED: 80'
 SHEET SIZE ORDERED: N/A SHEET SIZE RECEIVED: N/A
 THICKNESS ORDERED: W.035 THICKNESS RECEIVED: W.035

DESCRIPTION	NCR (Check Y/N)	COMMENTS
SURFACE DAMAGE	<input checked="" type="radio"/> Y	
CORRECT FINISH	<input checked="" type="radio"/> Y	
CORROSION	<input checked="" type="radio"/> Y	
CORRECT GRAIN DIRECTION	<input checked="" type="radio"/> Y	
CORRECT MATERIAL PER M-DRAWING	<input checked="" type="radio"/> Y	
CORRECT THICKNESS	<input checked="" type="radio"/> Y	
PHOTO REQUIRED	<input checked="" type="radio"/> Y	
CORRECT REF # TO LINK CERT	<input checked="" type="radio"/> Y	
CORRECT MATERIAL IDENTIFICATION	<input checked="" type="radio"/> Y	
CORRECT M# ON THE MATERIAL	<input checked="" type="radio"/> Y	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	<input checked="" type="radio"/> Y	
DOES THIS REQUIRE AN EXTRUSION REPORT	<input checked="" type="radio"/> Y	

CUT SAMPLE PIECE OF MATERIAL AND PERFORM A HARDNESS CHECK.				
TYPE OF MATERIAL	HRC	HRB	DUR A	DUR D
SIZE OF TEST SAMPLE				
HARDNESS / DUROMETER READING				

Testers located in the Quality Office

QC 18 INSPECTION ENGINEERING SIGNOFF (if required)

INSPECTED BY: DAS SIGNED OFF BY: _____

DATE: APR 11 2018 DATE: _____

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

SPECIFICATION CONTROL DRAWING

PURCHASE MATERIAL: AISI 304/316 SS SEAMLESS ROUND TUBING
 SPECIFICATION: ASTM A213 OR ASME SA213 OR ASTM A269

WALL THICKNESS TOLERANCE PER ASTM A269 AS FOLLOWS:

OD (IN)	PERMISSIBLE OD TOL (IN)	PERMISSIBLE WALL TOL
UP TO 1/2	±0.005	±15%
1/2 TO 1 1/2, EXCL.	±0.005	±10%
1 1/2 TO 3 1/2, EXCL.	±0.010	±10%
3 1/2 TO 5 1/2, EXCL.	±0.015	±10%
5 1/2 TO 8, EXCL.	±0.030	±10%

PART NUMBER:

M304TR|D|DDD|W|TTT
 |OD| |WALL|

WHERE "D,DDD" = OUTSIDE DIAMETER IN INCHES
 AND "TTT" = WALL THICKNESS IN INCHES

EG. 0.375" OD X 0.065" WALL TUBING = M304TR0.375W.065

RELEASED
 08/10/20

B	REFORMAT DWG. ADD SPECS (2N D8-1).	CP	08.10.20
A	NEW ISSUE	DS	01.06.08
REV	DESCRIPTION	BY	DATE
DESIGN			
DRAWN			
CHECKED			
MFG. APPR.			
APPROVED			
DE APPR.			
DATE	08.10.20		

DART AEROSPACE LTD		REV. B
HAMKESBURY, ONTARIO, CANADA		SHEET 1 OF 1
TITLE	304/316 ROUND TUBING	
SCALE	NTS	
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